REQUESTING SERVICE: RADIOLCGY SERVICE (114)
SHIP TO:
WAREHOUSE B86008
V.A. Medical Center
VA MEDICAL CENTER (575)
2121 NORTH AVE, BLDG 7
GRAND JUNCITON, CO 81501

P.O.# 575-B86008

Item No.	Qty	Description
1	1	SIGNA™ Voyager 1.5T Mobile MR System for Orthopedic Imaging

SIGNA™ Voyager 1.5T Mobile MR System for Orthopedic Imaging

The SIGNA™ Voyager 1.5T MR system is designed with pioneering technology to maximize your productivity and ROI while delivering unmatched patient comfort, uncompromised clinical performance and streamlined workflow. The Voyager configuration for Orthopedic imaging includes the system electronics, operating software, imaging software, post-processing software and RF coil suite:

- RF Receive Technology
- RF Coil Suite
- Ultra-High Efficiency Gradient System
- ADT Quiet Technology
- Computing Platform & DICOM
- Comfort Plus Patient Table
- SIGNA™Flow and READYView Workflow
- SIGNA™Works Applications Toolkit for Orthopedic imaging

Total Digital Imaging: The SIGNA™ Voyager Total Digital Imaging RF architecture delivers pioneering technology that generates images with greater clarity and up to 25% increased SNR. TDI has three fundamental components:

- Direct Digital Interface (DDI) employs an independent analog-to-digital converter to digitize inputs from each of 33 RF channels. Every input is captured and every signal digitized to deliver high quality 1.5T images.
- Digital Surround Technology (DST) delivers the capability to simultaneously acquire MR signal from the integrated body coil and the surface coil. By combining the digital signal from surface coil elements with the signal from the integrated RF body coil, the superior SNR and sensitivity of the high-density surface coils are combined with the superior homogeneity and deeper signal penetration of the integrated RF Body Coil. This results in richer, higher quality spine and body images.

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		• Digital Micro Switching (DMS) technology represents a revolutionary advance in RF coil design by replacing analog blocking circuits with advanced Micro Electro-Mechanical System (MEMS) based blocking circuits enabling a coil design that supports ultrafast coil switching times for further expansion of zero TE imaging capabilities. TDI Coil Suite: The Total Digital Imaging Suite of coils is designed to enhance patient comfort and image quality while simplifying workflow. The Coil Package includes: • Integrated T/R Body Coil • TDI Posterior Array • TDI Head Neck Unit • Anterior Array The TDI Posterior Array is the first coil to include the Digital Micro Switch. The Integrated Posterior Array is symmetrically positioned within the patient supporting cradle, and coil connection ports are located at both ends of the table. This design enables all components of the TDI Coil Suite to support either patient orientation and enable a more comfortable patient position. The PA is designed to provide optimal element geometry for each targeted anatomy by using different element geometries for the cervical-to-thoracic spine transition, thoracic and lumbar spine, and the body. • Elements: 32 • Length: 120.5 cm; Width: 48.6cm • S/I coverage: 113cm head-first or feet-first • Parallel imaging in all three scan planes • Head-first or feet-first positioning The TDI Posterior Array is designed to be used in conjunction with the TDI Head Neck Unit, the 1.5T Anterior Array, and the Flex Coils. The TDI PA is invisible to additional surface coils when they are placed directly on top of the surface. The TDI HNU consists of 3 imaging components: a head base-plate, an anterior neuro-vascular face-array, and the open

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		face adapter. The open-face design provides a patient-friendly feel. The base plate may be used with the open face adaptor to accommodate cervical spine exams in large or claustrophobic patients or for patients with intubation. Improved access and patient comfort may be achieved through elevation of the superior end of the coil. • Elements: up to 29 combined with PA and AA • Length: 53 cm; Width: 35 cm • Height with NV Array: 35 cm • S/I coverage: up to 45 cm with PA and AA • Parallel imaging in all three scan planes The Anterior Array facilitates chest, abdomen, pelvis, and cardiac imaging. The GEM AA is lightweight, thin and flexible, and pre-formed to conform to the patient's size and shape. With 54 cm of S/I coverage, the GEM AA permits upper abdomen and pelvis imaging without repositioning the coil. • Elements: up to 28 combined with PA • Length: 55.6 cm; Width: 67.4 cm • S/I coverage: 54 cm • R/L coverage: up to the full 50 cm FOV • Parallel imaging in all three scan planes • Head-first or feet-first positioning Ultra-High Efficiency Gradient System: The SIGNA™ Voyager gradient coil is 2x more efficient than previous gradient coil designs (i.e. the Voyager gradient coil requires half the amount of current required by previous designs to generate the same gradient field). This eco-friendly design enables the gradients to deliver superior performance while significantly reducing power consumption. Further, the SIGNA™ Voyager gradient driver includes Intelligent Gradient Control (IGC) technology which employs a digital control system that utilizes predictive models of the electrical and thermal characteristics of the gradient coil to maximize the performance of the gradient system to deliver exceptional clinical performance. • Peak amplitude per axis: 36 mT/m

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		• Up to 150 T/m/s instantaneous peak slew rate per axis • Intelligent Gradient Control • Maximum FOV: 50x50x48cm • Duty Cycle: 100% Quiet Technology (ART): SIGNA™ Voyager features Acoustic Reduction Technology (ART) designed to deliver an enhanced patient experience by significantly addressing both vibrational noise and airborne sound through 5 levels of technology. • Gradient & RF coil isolation – isolates the resonance module from the magnet • Vibro-acoustic isolation – isolated the magnet from the building • Mass-damped acoustic barriers – further mute sound • Gradient waveform optimization – user selectable Computing Platform: SIGNA™ Voyager utilizes a parallel, multi-processor design to enable simultaneous scanning, reconstruction, filming, post-processing, archiving, and networking. The keyboard assembly integrates an intercom speaker, microphone, volume controls, and emergency stop switch. Start scan, pause scan, stop scan and table advanced to center hot keys are also included. Host PC Platform – Xeon Intel® E5-1620v3 • 32GB DDR4-2133 RDIMM ECC • 2 x 512GB Solid State Drive SATA • 24” flat panel LCD with 1920x1200 resolution • Single tower configuration • DVD interchange Reconstruction Engine – Dual Intel® Xeon® E5-2680v3 (12 Cores 2.6G) • Memory: 96 GB • Hard Disk Storage: 2 x 400GB SSD SATA • 2D FFT/second (256 x 256 Full FOV): 63,796 2DFFT/second • Operating System: Scientific Linux

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DICOM: The SIGNA™ Voyager generates MR Image, Secondary Capture, Structured Report, and Gray Scale Softcopy Presentation State DICOM objects. The DICOM networking supports both send and query retrieve as well as send with storage commit to integrate with PACS archive. Please refer to the DICOM Compliance Statement for SIGNA™ Voyager for further details.

SIGNA™Works clinical applications and SIGNA™Flow are the latest software platform from GE with core pulse sequences, specialized clinical applications, workflow enhancements and visualization tools designed to enable high productivity with exceptional quality and outcomes with SIGNA™ Voyager.

SIGNA™Flow is designed to standardize and accelerate workflow from patient set-up to scanning to review. With SIGNA™Flow exams can be completed within a few mouse clicks – delivering quality and consistency for all patients and from all technologists. At the same time, SIGNA™Flow maintains the flexibility needed to rapidly adapt and optimize exams for patient specific situations.

- Comfort Plus Patient Table
- IntelliTouch Land-marking
- In-Room Operator Console
- Protocol Libraries & Management Tools
- Workflow Manager & Auto Functions
- Inline Processing, Networking & Viewing
- READYView post processing (on console)

Comfort Plus Patient Table: The SIGNA™ Voyager offers a fully integrated Comfort Plus patient table (also known as TDI patient table), which features the embedded TDI Posterior Array, to help improve exam efficiency, and patient comfort. The Comfort Plus patient table can be lowered to very low heights to facilitate transfer of wheelchair patients. The cradle width has also been increased by ~30% from previous generations to enable a more comfortable experience for patients.

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		• Maximum patient weight for scanning: 550 lbs • Maximum patient weight for lift: 550 lbs • Automated vertical and longitudinal power drive • Fast longitudinal speed: 25 cm/sec • Slow longitudinal speed: 1.9 cm/sec • IntelliTouch & laser land-marking • Laser alignment land-marking IntelliTouch Land-marking: IntelliTouch is designed to reduce land-marking steps for most exams to one touch. IntelliTouch sensor technology, integrated on each side of the Comfort Plus patient table, enables the user to establish the landmark for the exam by simply touching the sensor. In addition, SIGNA™ Voyager provides laser alignment lights for exams that require greater precision. The In-Room Operator Console speeds and guides the user through final patient set-up with intuitive controls and real-time feedback. Touch-screen monitors and key pads, integrated on both sides of the magnet, consolidate and place the necessary controls at the user's fingertips. During patient set-up, the in-room monitor updates status, and backlit keys guide the user to the next logical step. The in-room monitor also enables the user to check cardiac and respiratory waveforms without leaving the magnet room. With the SIGNA™ Voyager In-Room Operator Console the user has in-room control for selection of: • Display of patient name, ID, study description • Display and entry of patient weight • Display and entry of patient orientation and patient position • Cardiac waveform display and ECG/EKG lead confirmation with gating control • Respiratory waveform display • IntelliTouch technology land-marking • AutoStart to initiate scanning of the first series of the selected protocol • Display connected coils and coil status

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		• Display of table location and scan time remaining • Screen saver • Control in-bore ventilation and lighting The in-room display also allows for the integration of third-party tools. SIGNA™Flow Modality Worklist delivers an automated method to obtain patient, exam and protocol information from a DICOM work-list server. For sites with full DICOM connectivity, once a patient has been selected from the Modality Worklist, a new session can be started and the In-Room Operator Console will automatically highlight the relevant exam details. The Modality Worklist enables complete control of the MR protocol prescription, but also reduces work by allowing the MR protocol to be selected and linked to the patient record in advance of the patient's arrival. SIGNA™Flow Protocol Tools enable exam automation while also giving the user complete control of protocols for prescription, saving, searching, and sharing. Protocols are organized into two libraries: GE Optimized (preloaded protocols) and Site Authored (customized and saved). Protocols can be saved based on patient demographics, anatomy, scan type, or identification number for rapid search and selection, and commonly used protocols can be flagged as favorites for quick selection from the Modality Work-list. ProtoCopy enables a complete exam protocol to be shared with the click of a mouse and provides a process for managing protocols across multiple systems as well as saving protocols for back-up. GE protocols provided with the system include Protocol Notes designed to guide the user through the procedure. For special applications, Protocol Notes also include video guides with step-by-step video-based demonstration and instruction. Protocol Notes can be edited by the user to reflect protocol modifications to aid communication among users. SIGNA™Flow Workflow Manager and Linking: Upon selection a

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		protocol automatically loads into the Workflow Manager for implementation. The Workflow Manager controls location prescription, acquisition, processing, visualization and networking, and can fully automate these steps, if requested by the user. Once the target anatomy has been prescribed, the Linking feature can be used to translate appropriate parameters to all subsequent series that have been linked, eliminating the need for further action by the user. Auto Functions when selected can automatically initiate the localizer, coil selection, series-to-series scanning, multi-station scanning, prescription of scan plans for brain exams, as well as delivered instructions to the patient. Pause and Resume allows the user to pause a scan in progress (even in automated mode), to respond to a patient need, and then resume mid-scan (without starting the scan over) helping to address rescans. Auto Protocol Optimization (APx) is designed to optimize breath-hold exams by enabling rapid adjustment of imaging parameters for patient circumstances. APx automatically calculates alternative protocol parameters, to either optimize scan time or resolution, for one click selection. Auto Navigators enable free-breathing (respiratory compensated) body imaging for patients unable to breath-hold. The diaphragm tracker pulse automatically places and updates to streamline workflow and eliminate the set-up time associated with respiratory bellows. Auto Navigators can be use with a broad range of imaging techniques including dynamic contrast enhanced T1-weighted imaging. SIGNA™Flow Inline Processing automatically completes post-processing steps for the user after the images have been reconstructed and saved into the database. For certain tasks, such as vascular segmentation, the user must accept the results, or complete additional steps prior to saving the images to the database. These automated processing steps can be saved to the (scan) protocol to ensure consistent output and workflow: • Diffusion weighted series: automatic compute and save

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		• Diffusion tensor series: automatic compute and save • eDWI: automatic compute and save • Image filtering: automatic compute and save • Maximum/Minimum Intensity Projection: automatic compute and save • Pasting: automatic compute and save • Reformat to orthogonal plane: automatic compute and save • T2 map for cartilage: automatic compute and save • 3D Volume Viewer: automatic load • Image Fusion: automatic load • Interactive Vascular Imaging: automatic load • FiberTrak: automatic load • Spectroscopy: automatic load SIGNA™Flow Advanced Visualization: READYView is an advanced visualization tool designed to simplify the quantitative analyses of multiple data sets. READYView automatically selects the most relevant post-processing protocol for the user and provides guided workflow and general assistance for the processing algorithms. In addition, the user can customize workflows with adjustable layouts, personalized parameter settings, and custom review steps. Key capabilities of READYView include the ability to analyze, export and save: • Time series • Diffusion weighted series • Diffusion tensor series • Variable echo series • Blood oxygen level dependent series (functional data) • Spectroscopy data (single voxel and 2D or 3D CSI) • Elastography series SIGNA™Works applications tools are designed to complement SIGNA™Flow to standardize and accelerate workflow from patient set-up to scanning to review. The clinical imaging tools are organized to address six clinical areas: NeuroWorks, OrthoWorks, BodyWorks, OncoWorks, CVWorks and PaedWorks.

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		The SIGNA™ Voyager configuration for Orthopedic imaging provides the enhanced OrthoWorks XT toolkit and MAVRIC SL. OrthoWorks, OrthoWorks XT and MAVRIC SL together deliver applications and imaging options optimized for the challenges of MSK and Spine imaging. Please refer to the product data sheet for SIGNA™ Voyager for complete details. • MARS High Bandwidth distortion reduction for FSE • PROPELLER 3.0 motion robust radial FSE • 3D Cube FSE-based imaging • 3D COSMIC modified steady state imaging • 2D/3D MERGE T2* multi-echo fast gradient echo imaging • FLEX fat-water separation imaging • IDEAL fat-water separation imaging for FSE and GRE • DTI diffusion tensor imaging • FiberTrak processing for diffusion tensor imaging • CartiGram T2 cartilage assessment • MAVRIC SL MR-Conditional implant imaging • READYView post-processing While optimized for Orthopedic imaging the SIGNA™ Voyager system is also fully configured for whole body MR imaging: • NeuroWorks delivers applications and imaging options optimized for the challenges of Neuro imaging. Please refer to the product data sheet for SIGNA™ Voyager for complete details. • BodyWorks delivers applications and imaging options optimized for the challenges of Body imaging. Please refer to the product data sheet for SIGNA™ Voyager for complete details. • OncoWorks delivers applications and imaging options optimized for the challenges of Oncology imaging. Please refer to the product data sheet for SIGNA™ Voyager for complete details. • CVWorks delivers applications and imaging options optimized for the challenges of Vascular and Cardiac imaging. Please refer to the product data sheet for SIGNA™ Voyager for complete details.

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		• PaedWorks delivers applications and imaging options optimized for the challenges of Vascular and Cardiac imaging. Please refer to the product data sheet for SIGNA™ Voyager for complete details.
2	1	Standard Service License Standard Service License GE Healthcare has reclassified its service tools, diagnostics and documentation into various classes (please refer to the Service Licensing Notification statement at the beginning of this Quotation). The Standard License provides access to service tools used to perform basic level service on the Equipment and is included at no charge for the warranty period.
3	1	MSK Suite MSK Suite • 1.5T 16 Channel T/R Knee Array • 1.5T 8 Channel Foot/Ankle Array • 1.5T 3 Channel Shoulder Array • 1.5T 16 Channel Small Flex Coil The 16-channel Knee Array is a transmit/receive coil that produces high resolution images of the knee and is optimized for parallel imaging in all three directions to reduce acquisition times. The Foot/Ankle Array produces high-resolution images of the foot and ankle by incorporating an 8-channel phased array design in a unique "ski" boot design. The unique coil design has excellent distal coverage and supports multiple foot positions for optimizing studies. Parallel imaging is supported to reduce acquisition times. The 3-channel Shoulder Array offers the increased signal-to-noise characteristic of phased-array technology, along with a unique sleeve design that delivers exceptional joint-imaging capabilities. The coil provides clear definition of the

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		shoulder joint, specifically the head of the humerus, clavicle, acromion, supraspinatus muscle and ligaments. Patient comfort pads and restraining straps are included. The Small Flex Coil is the smallest of a versatile set of high density 16-channel receive coils designed to give high quality images in a wide range of applications. The smallest of these three coils is optimized for the reduced field of view and improved image quality needed in hand, wrist, and elbow imaging applications. Together with an extra interface assembly, this coil is ideal for MR sites doing a higher volume of musculoskeletal scans.
4	1	1.5T Flex Suite, Standard 1.5T Flex Suite, Standard The Flex Suite is a versatile set of high density 16-channel receive coils designed to give high quality images in a wide range of applications. The high degree of flexibility is particularly advantageous when imaging patients that do not fit the constraints of rigid coils, improving the patient and technologist experience. The size and shape of the elements in each flex coil have been optimized for high SNR and parallel imaging for the volume embraced by the coil. This Standard set provides the Medium and Large flex coils, and a knee stabilization fixture. With these two coils and the included accessories, this suite covers a broad range of musculoskeletal applications, including hand, wrist, elbow, shoulder, hip (unilateral and bilateral), knee, ankle, and foot. In addition, the coils' versatility has been shown in a range of general purpose applications that include head, neck, and spine exams. Includes: • 1.5T Flex Coils - Medium and Large Arrays. • 1.5T Flex Interface Module 16-channel Fixed, P-Connector. • Flex Knee Stabilization fixture for flat table. • Flex GP Strap and Interface Module Cover.

Item No.	Qty	Description
		• Flex Cable Take-up Pad and General Purpose Stabilization Pad.
5	1	MR 3T & 1.5T Core Training Package (Experienced GE Customer) MR 3T & 1.5T Core Training Package (Experienced GE Customer) Core training includes onsite and remote training options Training package includes Phase 1 & 2 onsite training, plus 4 follow-up days for a total of 12 onsite days. 16 TVA hours, online and remote training is also included. Program concludes one year after the initial start date. Instruction is provided from 8 AM to 5 PM, Monday through Friday and includes T&L expenses.
	1	**MR Accessories - SIGNA Voyager 1.5T**
6	1	MRI Audio 1505 Complete music system for Premium MRI systems MRI Audio 1505 Complete music system for Premium MRI systems. The MRI Audio premium sound system is designed for comfort and allows the patient to listen to music while being scanned in an MRI. The technologist is in full control of the system headphones, microphone, sound source and volume controls. Standard 3.5 mm plug for music source allows any compatible music player, tablet or phone. In-ear headphones work with any head coil. Package includes: • Digital amplifier • iPad Mini • iPad Mini mount with lock • 3G transducer • In-ear headphones, 29dB noise reduction • Disposable ear tips (300 pairs) • Technologist's speakers • 6 ft RCA 3.5 mm cable • Auto-voice/MIC adapter
7	1	MEDRAD MRXperion injector on pedestal mount

Item No.	Qty	Description
		The Medrad® MRXperion™ MR Injection System is a smart performer in the MR suite, delivering contrast fluid and data management. Streamlined Injection Workflow • Less time preparing for the injection and more • time to focus on the patient and optimize • procedure management. Convenience at Point of Care • On-board eGFR and Weight Based Dosing • Calculators, an Injection Pressure Graph, • Independent Test Inject and KVO functions. Real-time Support • Connect to VirtualCare® Remote Support* for • advanced injector system diagnostics, seamless Improved Efficiences • Snap-on/Twist-off Syringe Design • Auto plunger advance and retract when attaching and detaching syringes • Automatic filling and priming • Injection/post-injection reminders • Injection pressure graph Reproducible Quality • Proven track record of design and performance • On-site field service and VirtualCare® Remote Support* foradvanced injection system diagnostics and real-time support Personalized Care • Patient-Centric workflow design • Protocol storage/retrieval • On-board eGFR and Weight Based Dosing Calculators • Injection enabled when head is tilted down The MRXperion™ Injector package includes: • Dual injector head on pedestal with integral double hook IV pole • Scan room unit power supply with 40 ft. (12 m) DC cable

Item No.	Qty	Description
		• Scan room fiber optic cable – 40 ft. (12 m) • Control room fiber optic cable - 150 ft. (45 m) • Fiber optic quick disconnect panel • Fiber optic penetration panel kit • Control room unit (display and pod) with hand-switch • Display and pod power supplies • CAT5 cable (display to pod) - 1 ft. (0.3m) • CAT5 cable (pod to hospital network) - 25 ft. (7.6m) • Power cords - North America and Japan (3 each), 10 ft. (3 m) • Power cords – International (3 each), 10 ft. (3 m) • Operators manual (English) • Multi-lingual Operators manual CD • Quick guides (English) for injector and hanger • Installation manual (English) • Service manual and schematics manual CDs (English) • Warranty packet • Installation, customer's operational training at time of installation, and one year full on-site warranty in Bayer service countries • LAN port for VirtualCare Remote Service An optional penetration panel filter kit E88221XC is intended to be used for an alternate installation of the power supply of the MEDRAD® MRXperion™ Injection System outside of a MR scan room. System Specifications System Capabilities o Syringe Capacities: • Syringe A: 65ml • Syringe B: 115ml o Programmable volume range (ml): • Syringe A: 0.5 ml to max syringe volume in 0.1 ml increments from 0.5 ml to 31 ml, 1ml increments above 31 ml • Syringe B: 1 ml to max syringe volume in 1 ml increments o Programmable flow rate range (ml/sec)

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		• 0.01 to 10 ml/s in 0.01 ml/s increments between 0.01 and 3.1 ml/s • 0.1 ml/s increments between 3.1 and 10 ml/s o KVO (Keep Vein Open): 6 factory presets of 0.25 ml every 15, 20, 30, 45, 60 or 75 sec o Test Inject: configurable from 0.5 ml to 20 ml in 0.1 ml increments o Pressure range (psi): 6 factory presets from 100 to 325 PSI (690 to 2240 kPa) o Injection / Post Injection Reminders: up to 5 settings of 1 sec to 20 minutes in 1 sec increments o Injection protocol storage: 60 protocols up to 6 phases each o Injection Hold / Pause: up to 20 minutes in 1 sec increments o eGFR Calculator • For adults: MDRD, Cockroft-Gault, Modified Cockroft-Gault and CKD-EPI methods • For children: Bedside Schwartz method o Weight Based Dosing Calculator: user Configurable o Remote Service Capability: with optional VirtualCare Remote Support Dimensions and Weight o Control Room Unit • 15.58" (39.58 cm) W • 12.71" (32.28 cm) H • 10.23" (25.98 cm) D • 17.6 lbs (8.0 kg) o Scan Room Unit • 23.30" (59.0 cm) W • 71.40" (181.0 cm) H • 23.30" (59.0 cm) D • 95.7 lbs (43.4 kg) o Power Supply • 7.60" (19.0 cm) W • 3.40" (9.0 cm) H

Item No.	Qty	Description
		• 15.40" (39.0 cm) D • 5 lbs (2.3 kg) Electrical o Voltage Requirements • 100-240 VAC • 50/60 Hz • 120VA - 210VA
	1	**NonProducts**
8	1	Advanced Mobility Project Proposal TB-17-1164 -
		Mobile HD with CXK4